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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,385	02/28/2002	Hiroshi Sakamoto	381NP/50859	8361

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EXAMINER

LE, DAVID D

ART UNIT

PAPER NUMBER

3681

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,385

Applicant(s)

SAKAMOTO ET AL.

Examiner

David D. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

This is the first Office action on the merits of Application No. 10/084,385, filed on 28 February 2002. Claims 1-9 are pending.

Documents

1. The following documents have been received and filed as part of the patent application:
 - Information Disclosure Statement, received on 02/28/02
 - Priority Document, received on 02/28/02

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

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3. The abstract of the disclosure is objected to because the current abstract has exceeded 150 words. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities:

- Page 2, line 11 the word “integr ally” should be --integrally--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-3 and 9 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the first and second motor being driven in various modes of operations, does not reasonably provide enablement for the reduction of torque on the output shaft is compensated, as recited in claim 1, or the torque fluctuation on said output shaft is suppressed, as recited in claim 2, or the wear-out of said claw clutch is suppressed by controlling either one of said first input shaft and said second input shaft, as recited in claims 3 and 9, when conducting gear-shift through change-over of said gear trains by means of said claw clutch. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The current specification does not adequately disclose what would be the cause, by driving either one of said first motor and said second motor, so that the reduction of torque on the output shaft is compensated, as recited in claim 1, or the torque fluctuation on said output shaft is suppressed, as recited in claim 2, or the wear-out of said claw clutch is suppressed by controlling either one of said first input shaft and said second input shaft, as recited in claims 3 and 9, when conducting gear-shift through change-over of said gear trains by means of said claw clutch.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-3 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3 and 9:

Claim 1 recites the limitation “wherein either one of said first motor and said second motor is driven so that reduction of torque on said output shaft is compensated, when conducting gear-shift through change-over of said gear trains by means of said claw clutch.”

Claim 2 recites the limitation “wherein either one of said first motor and said second motor is driven so that torque fluctuation on said output shaft is suppressed, when conducting gear-shift through change-over of said gear trains by means of said claw clutch.”

Claims 3 and 9 recite the limitation “wherein either one of said first motor and said second motor is driven so that wear-out of said claw clutch is suppressed by controlling either one of said first input shaft and said second input shaft, when conducting gear-shift through change-over of said gear trains by means of said claw clutch.”

It appears that the above claims recite a desire result without stating the structure element that supports the desire result.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 00/26053 to Schnelle.

To facilitate a better understanding as well as greater accuracy in explaining the following claim rejections, the examiner will refer to U. S. Patent 6,558,283 to Schnelle as the equivalent English version of the WO 00/26053 to Schnelle.

Claims 1-5 and 7-9:

Schnelle (i.e., Fig. 1; column 2, line 20 – column 6, line 61) discloses a hybrid transmission comprising:

- An engine, (column 2, line 22);
- A gear-type transmission (15);
- A first input shaft (31);
- A first clutch (i.e., vicinity of reference number 36 of Fig. 1);
- A second input shaft (32);
- A second clutch (i.e., vicinity of reference number 36 of Fig. 1);
- An output shaft (40);
- A plural numbers of gear trains provided between said first input shaft and said output shaft and between said second input shaft and said output shaft;
- A claw clutch provided on said gear trains (i.e., vicinity of reference number 38 of Fig. 1);
- A first motor connected to said first input shaft (26);
- A second motor connected to said second input shaft (27);
- A battery (i.e., column 2, line 41);
- Wherein either one of said first motor and said second motor is driven so that reduction of torque on said output shaft is compensated, when conducting gear shift through change-over of said gear trains by means of said claw clutch (i.e., column 3, line 39 – column 5, line 10);
- Wherein either one of said first motor and said second motor is driven so that torque fluctuation on said output shaft is suppressed, when conducting gear shift through change-over of said gear trains by means of said claw clutch (i.e., column 3, line 39 – column 5, line 10);

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- Wherein either one of said first motor and said second motor is driven so that wear-out of said claw clutch is suppressed by controlling either one of said first input shaft and said second input shaft, when conducting gear shift through change-over of said gear trains by means of said claw clutch (i.e., column 3, line 39 – column 5, line 10);
- Wherein said battery is being charged with an output generated by either one of said first motor and said second motor (i.e., column 4, lines 14-17);
- Wherein either one of said first motor and said second motor is driven with an output discharged from said battery for traveling (i.e., column 3, lines 1-19);
- Wherein electric power generation is conducted through driving either one of said first motor or said second motor by a part of motive power of said engine, so as to charge said battery with generated output obtained by the electric power generation, during traveling with driving power of said engine (i.e., column 3, line 63 – column 4, line 13);
- Wherein either one of said first motor and said second motor is driven by said engine, so as to conduct electric power generation, while the other is driven with generated output obtained through the electric power generation, thereby to travel (i.e., column 3, line 63 – column 4, line 28); and
- Wherein either one of said first motor and said second motor is driven with an output discharged from said battery, thereby to assist driving power of said engine (i.e., column 3, line 28-38).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/26053 to Schnelle in view of U. S. Patent Application Publication No. US 2002/0179347 A1 to Tamai et al.**

Claim 6:

Schnelle (i.e., Fig. 1; column 2, line 20 – column 6, line 61) discloses a hybrid transmission comprising:

- An engine, (column 2, line 22);
- A gear-type transmission (15);
- A first input shaft (31);
- A first clutch (i.e., vicinity of reference number 36 of Fig. 1);
- A second input shaft (32);
- A second clutch (i.e., vicinity of reference number 36 of Fig. 1);
- An output shaft (40);
- A plural numbers of gear trains provided between said first input shaft and said output shaft and between said second input shaft and said output shaft;
- A claw clutch provided on said gear trains (i.e., vicinity of reference number 38 of Fig. 1);

- A first motor connected to said first input shaft (26);
- A second motor connected to said second input shaft (27);
- A battery (i.e., column 2, line 41); and
- Wherein said battery is being charged with an output generated by either one of said first motor and said second motor (i.e., column 4, lines 14-17).

Schnelle lacks:

- When a vehicle stops and if remaining capacity of said battery is less than a predetermined value, the charging said battery with generated output is obtained through either one of said first and said second motor.

Tamai (i.e., paragraph [0043]) discloses a propulsion system for use in a hybrid vehicle comprising the above limitation that Schnelle lacks.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schnelle battery state of charge (SOC) to include a predetermined set value so that when the battery SOC is below the predetermined set value, at least one of the motors will be commanded to recharge the battery, in view of Tamai, in order to provide the battery with sufficient power to perform its functions such as restarting the internal combustion engine in a hybrid type of vehicle.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schmidt (U. S. Patent No. 5,935,035) teaches an electro-mechanical powertrain having two motors/generators.

Schmidt (U. S. Patent No. 5,730,676) teaches a three-mode, input-split, hybrid transmission, as shown in Fig. 1.

Minowa et al. (U. S. Patent No. 6,142,907) teaches a power transmission apparatus for an automobile, as shown in Fig. 1.

Bowen (U. S. Patent No. 6,371,878) teaches an electric continuously variable transmission, as shown in Fig. 1.

WO00/32433 teaches a drive device having an engine, a plurality of motors, and a coaxial differential mechanism, as shown in Fig. 2.

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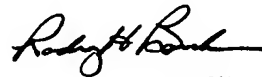
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


ddl

June 12, 2003


RODNEY H. BONCK
PRIMARY EXAMINER
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